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EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/853,183	<b>Applicant(s)</b> HESSABI, IRAJ	
	<b>Examiner</b> Mark Ruthkosky	<b>Art Unit</b> 1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***New Matter Objections***

The amendment filed 12/29/2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows: The disclosure of the instant specification does not limit the invention to have no structural member there between. In addition, the specification has been amended to remove the sentence 'unlike batteries of the prior art, at least two chambers are needed to provide a voltage.' Removing this disclosure constitutes adding new matter to the specification.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The amended claim states that each chamber has no structural member between the electrodes. The claim further includes a structural member, which is a liquid in the chamber that is described in the specification to be an electrolyte between the electrodes. As these limitations to a structural member between the electrodes contradict one another, the claims are indefinite.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zito (US 5,439,757) in view of Brecht (US 5,543,243.)

The instant claims are to a DC power source battery comprising a plurality of chambers having walls that are electrically non-conductive, a liquid in the chambers, a positive and a negative electrode and a means for refreshing the liquid.

Zito (US 5,439,757) teaches a battery including a cell that includes a plurality of chambers having membrane walls that are electrically non-conductive (see claims 1-5 and figures 1—3.) An aqueous liquid flows through the chambers. Positive and negative electrodes are located in the chambers. Pumps shown before the chamber and valves shown after the chamber provide a means for refreshing the liquid. The cell is a closed system with gas vents in the reservoir tanks.

With regard to claim 1, the reference teaches structural members between the electrodes for transferring charge between the electrodes including an electrolyte and a separator. Brecht (US 5543,243) teaches a battery comprising a plurality of chambers having walls, a liquid in the chambers, a positive and a negative electrode and a means for refreshing the liquid (see figures 1 and 4.) The reference shows embodiments where a structural member, such as a flow channel, is partially located between electrodes, and

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embodiments where there is no structural member between the electrodes. In addition the member does not span the cross section of the electrode interface and the electrolyte freely flows through the cell. It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare a battery with no structural member between the electrodes such as an solid electrolyte or separator, as the prior art teaches electrode systems which are physically separated by the battery arrangement with no structure between the electrodes, while including a single electrolyte flowing between the electrode in order to transfer charge between the electrodes.

With regard to claim 2, the references do not teach a valve connected to the entry port of the chamber. The use of a valve is taught in the reference at the outlet of the chamber. It would be obvious to one of ordinary skill in the art at the time the invention was made to include a valve at the entry of the chamber as one of ordinary skill in the art would understand from the teachings of Zito that valve assemblies are used to open and close passages in a flowing battery system. In the reference, the closing of the valve will prohibit further volume of liquid to enter the system, as the outlet will be closed.

With regard to claim 4, the references do not teach the exit valve to comprise a panel and a hinge. The applicant has stated on page 4, line 25 that hinges of this type art well known in the art. It would be obvious to one of ordinary skill in the art at the time the invention was made to substitute a hinged valve for the turning valve at the exit port of the chamber as one of ordinary skill in the art would understand from the teachings of Zito that a hinge-type valve assembly may be substituted for the turning valve in order to open and close passages in a flowing battery system. As hinges of this type art well known in the art, one of ordinary skill would understand to employ this type of valve to

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close the port of the flow channel. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zito (US 5,439,757) and Brecht (US 5,543,243), as applied to claim 1 above, and further in view of Hummel (US 4,722,876.)

The teachings of Zito and Brecht have been presented. Zito does not teach the liquid to be tap water. Hummel (US 4,722,876) teaches a battery where a liquid such as tap water is introduced through ports in order to act as an electrolyte between the electrodes. The battery may have water added to replenish the supply or it may be used to flush products of corrosion from the chamber (claims and column 12, lines 20-55.) It would be obvious to one of ordinary skill in the art at the time the invention was made to use tap water as the liquid source in the invention of Zito as tap water has been shown in the art to replenish the electrolyte supply or flush products of corrosion from the chamber. One of ordinary skill in the art would recognize that water may be added to the system of Zito in order to replenish the electrolyte or to flush the system. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zito (US 5,439,757) and Brecht (US 5,543,243), as applied above, and further in view of Colbeck et al. (US 3,508,971.)

The teachings of Zito and Brecht have been presented. Zito does not teach the positive electrode to be copper and the negative electrode to be zinc. Copper/zinc batteries are well known in the art. For example, Colbeck teaches a water-activated

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battery where an electrode assembly is placed into a battery chamber. The negative electrode may be zinc (col. 3, lines 1-15.) The positive electrode may include copper (col. 2, lines 60-75.) A water-based electrolyte is added to and circulated through the battery through ports going into and out of the battery. It would be obvious to one of ordinary skill in the art at the time the invention was made to use a system of multiple chambers with an inlet and outlet for electrolyte as taught by Zito with a copper/zinc electrode system as taught by Colbeck as the battery will allow for the addition of water to the electrode system while producing electrical energy from the battery source. In addition, Zito teaches a battery with a plurality of electrically non-conductive chambers and includes a valve system for adding and circulating fluids. Colbeck teaches a similar system without the means for refreshing the liquid. In Colbeck water is just added by submerging the battery in water and emptied by dumping the water from the battery. It would be obvious to use the system of Zito to add water to the copper/zinc electrode assembly taught by Colbeck.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection. The prior art teachings of Zito include a membrane formed between the electrodes, however, it would be obvious to one of ordinary skill in the art that no separating member is necessary between the electrodes if the electrodes are physically separated by the structure of the battery as shown in Brecht (US 5,543,243.)

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*Examiner Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky  
Primary Patent Examiner  
Art Unit 1745

*Mark Ruthkosky*  
3/30/04